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TITLE: Relationship Between Mammographic Density and IGF Levels  
Among Hispanic and Non-Hispanic White Women

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<b>13. ABSTRACT (Maximum 200 Words)</b> The purpose of this study is to investigate the relationship between breast density and IGF levels in pre and postmenopausal Hispanic and non-Hispanic White women. This study will use data collected from the parent study, the Women's Breast and Bone Density (WBBD) Study, in combination with the results from laboratory analyses to test this association. The parent study was completed on May 31, 2003. Recruitment was lower than expected for the Hispanic women, but recruitment goals were met or exceeded for the non-Hispanic White women. The total numbers are: 60 premenopausal Hispanic women, 75 premenopausal non-Hispanic White women, 28 postmenopausal Hispanic women, and 78 postmenopausal White women. The serum and plasma samples have been collected for the Insulin-like Growth Factors (IGFs) and their binding proteins (IGFBPs) assays used in this study (including IGF-1, IGFBP-3, and Free IGF-1), however, the assays will be completed in Fall 2003. The mammographic density measurements are currently being finalized and will be merged with the data collected from questionnaires, physical measurements, and dual energy x-ray absorptiometry (DXA) scans. When the laboratory analyses are complete, the results of those tests will be merged with the WBBD data so the analysis can be completed and results disseminated.				
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## **Introduction**

Breast cancer is one of the most common cancers among Hispanic and non-Hispanic White women, although Hispanic women have considerably lower incidence rates. Many laboratory studies have focused on the role of Insulin-like Growth Factors (IGFs) in breast cancer development and progression. Recently, epidemiological studies have begun to investigate the association between breast cancer risk and circulating levels of IGFs and their binding proteins (IBFBPs). One study investigated the relationship between IGF levels and mammographic density, a known predictor for breast cancer, in a primarily Caucasian population. Most studies conclude that there is an association between circulating IGF and IGFBP levels and breast cancer risk in premenopausal women, but not in postmenopausal women. However, these studies are still controversial and more research needs to be conducted in this area to elucidate the extent of this relationship. Specifically, there are many potential confounding factors and it is necessary to investigate the association between IGF and breast cancer risk after controlling for these factors. This study proposes to investigate this relationship with the ability to control for menopausal status, ethnicity, physical measurements, and precise body composition measurements as derived from dual energy x-ray absorptiometry (DXA).

## **Body**

The recruitment and data collection for the parent study (the Women's Breast and Bone Density Study, PI: Zhao Chen, MPH, PhD) was completed on the May 31, 2003. The awardee was directly involved in all aspects of the parent study, including recruitment, data and sample collection, and project coordination. In all, recruitment was lower than expected. Nevertheless, for the non-Hispanic White women recruitment goals were either met or exceeded. The goal of the study was to recruit 300 participants, 75 in each group, however, the total numbers were: 60 premenopausal Hispanic women, 75 premenopausal non-Hispanic White women, 28 postmenopausal Hispanic women, and 78 postmenopausal White women. The serum and plasma samples have been collected and will be used to measure insulin-like growth factor 1 (IGF-1), insulin-like growth factor binding protein 3 (IGFBP-3), and Free (unbound) IGF-1. The laboratory analyses will be completed in October 2003 – November 2003.

The mammographic density measurements are currently being finalized and will be merged with the data collected from questionnaires, physical measurements, and the DXA scan. When the laboratory analyses are complete, the results of those assays will be merged with the finalized WBBD data so that the analysis can be completed and manuscripts prepared. It is expected that the data analysis and manuscript preparation will begin in December 2003 and the manuscripts will be submitted for publication during the spring of 2004.

## **Key Research Accomplishments**

- Development of study protocol and procedures
- Completion of recruitment and data collection in the parent study
- Biological sample collection and storage
- Became skilled at performing ELISAs, which will be used for IGF analyses

## **Reportable Outcomes**

Thus far, there have been no reportable outcomes from this research. Since the recruitment of the parent study has just ended and data is still being merged and cleaned, there have not been any opportunities to prepare and present the findings from this study. However, the samples have been collected and the laboratory analyses will be completed in October and November of 2003, allowing for the dissemination of results to begin in the spring of 2004. This is in accordance with the original statement of work proposed for this project.

## **Conclusions**

It is difficult to draw any conclusions from the results of this study so far. However, I have been involved with the parent study since the beginning of the study and feel that I have learned and accomplished a great deal. I have learned the daily procedures of managing an epidemiological research study, and some of the difficulties that can be encountered when doing so. I've had the opportunity to work with study participants, research staff, administrative personnel, and members of the Human Subjects Committee. Each of these experiences has helped to prepare me for the future when I will be conducting my own research studies. I hope that I will be able to use all of the experience gained on this study to conduct good, solid scientific research that can be used to improve prevention of or treatment for breast cancer.

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